

Log # TXX-89747
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909.4
Ref. # 10CFR50.55(e)

October 30, 1989

William J. Cahill, Jr.
Executive Vice President

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
ASCO SOLENOID VALVES IN PISTON AIR ACTUATORS
SDAR: CP-86-75 (SUPPLEMENTAL REPORT)

Gentlemen:

On September 4, 1986, TU Electric verbally notified the NRC of a deficiency involving ASCO solenoid valves in piston air actuators of PAPCO dampers. Specifically, grease and oils used to reduce friction in the piston air actuators of PAPCO dampers could degrade ethylene propylene inner materials of ASCO solenoid valves. The last report on this issue was logged TXX-6287 dated February 19, 1987 and indicated the deficiency was not reportable under the provisions of 10CFR50.55(e). Based on additional reviews it has been concluded that this item meets the criteria for reportability pursuant to 10CFR50.55(e). The required information follows.

Description

Inspection and Enforcement Notice (IEN) 80-11, "Generic Problems with ASCO Valves in Nuclear Applications Including Fire Protection Systems" provided information discussing the potential for degradation of ethylene propylene elastomers utilized in certain ASCO solenoid valves (SOV). The degradation was caused by exposure to petroleum based compressor lubricants in instrument air systems or from thread cutting lubricants utilized on instrument air piping during construction. This notice was reviewed and determined not to be applicable to CPSES.

Subsequent to IEN 80-11, TU Electric became aware of another mechanism for potential degradation of ethylene propylene materials due to contamination from petroleum based lubricants used in the piston actuators of air operated dampers. During repositioning of the damper (usually in the closed direction), air from the actuator is exhausted through the solenoid. If this exhaust air is contaminated with an oil mist, the SOV ethylene propylene

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materials can degrade. Nonconformance reports generated at CPSES documented failures from this mechanism, and design changes were implemented to replace ethylene propylene materials with Viton materials in ASCO solenoids used to actuate PAPCO dampers. Viton materials are not degraded by petroleum based lubricants. However, due to the sensitivity of Viton to radiation exposure, ethylene propylene materials were retained in certain applications. These design changes are discussed in TXX-6287.

The recent review has focused on the present design of safety related systems and on the potential applicability to other piston operated dampers with solenoid valves having ethylene propylene materials where the piston actuators were lubricated with a petroleum based lubricant. Components potentially affected in addition to PAPCO dampers include PULLMAN and POSI-SEAL dampers as well as the feedwater split-flow bypass valves.

Safety Significance

Based on the current design of safety related systems affected by this deficiency, failures of ASCO solenoids due to petroleum based lubricants could have been adverse to the safety of plant operations and is considered a significant deficiency in design. As a result, this deficiency has been deemed reportable pursuant to 10CFR50.55(e).

Corrective Action

The design changes discussed in TXX-6287 are being reexamined and if necessary will be expanded to include additional components as described above. In those cases where ethylene propylene materials are currently being utilized in ASCO solenoids of air operated dampers or valves, a review of the lubrication history associated with these valves will be performed to ensure contamination with petroleum based lubricants has not occurred. For damper/valve actuators that were previously lubricated with petroleum based lubricants, appropriate action will be taken to ensure proper operation. This may include substitution of Viton for ethylene propylene in additional solenoids or, in cases where ethylene propylene must be retained, thorough cleaning and relubrication of piston actuators with silicon lubricants. New ethylene propylene materials will be used as required. Maintenance procedures for piston actuators currently specify silicone based lubricants and will ensure the integrity of ethylene propylene when retained for EQ purposes. To ensure the continued utilization of silicon lubricants where appropriate, the lubricant specification will be revised to ensure that a departure from the use of silicon lubricants is reviewed for the material compatibility concerns of this issue. Responsibility for material compatibility reviews will be defined by procedure.

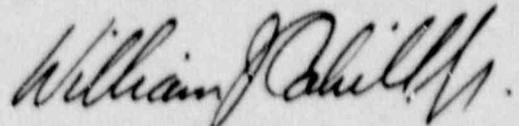
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The hardware changes required for Unit 1, and implementation of programmatic controls discussed above applicable to Unit 1 and Unit 2, will be complete prior to Unit 1 fuel load. The hardware changes required for Unit 2 will be complete prior to Unit 2 fuel load.

Sincerely,



William J. Cahill, Jr.

JTB/vld

c - Mr. R. D. Martin, Region IV
Resident Inspectors, CPSES (3)